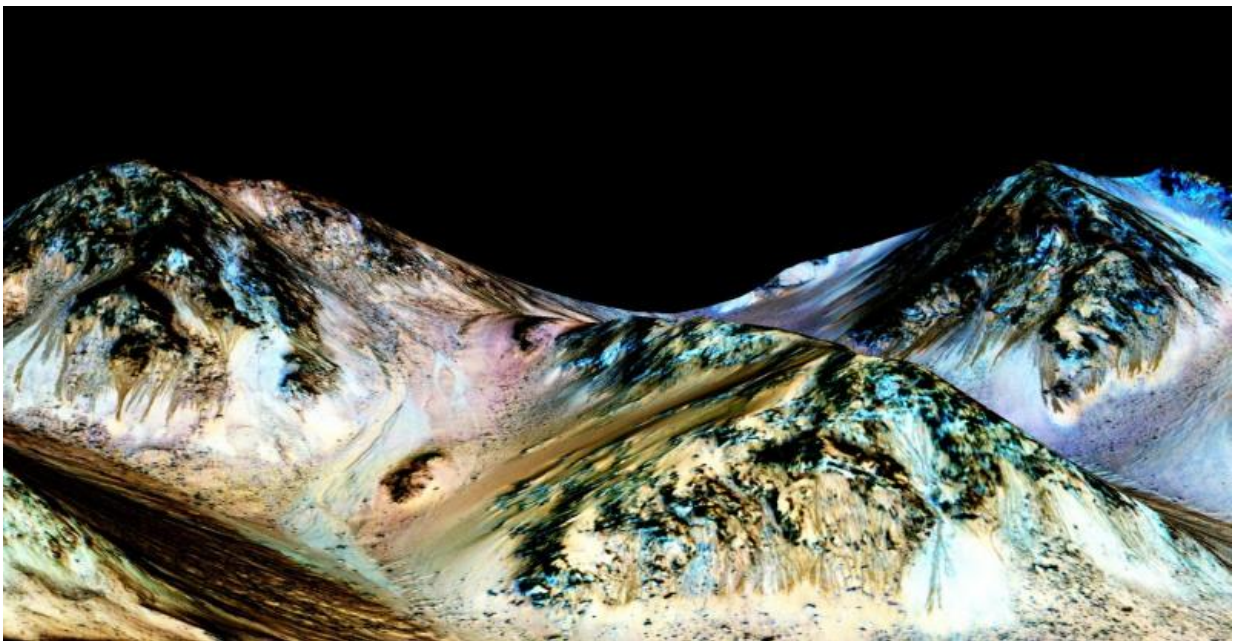


# Best of Last Week – Water on Mars, drunk kicking a robot and a drug to sharpen memory

October 5 2015, by Bob Yirka

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These dark, narrow, 100 meter-long streaks called recurring slope lineae flowing downhill on Mars are inferred to have been formed by contemporary flowing water. Recently, planetary scientists detected hydrated salts on these slopes at Hale crater, corroborating their original hypothesis that the streaks are indeed formed by liquid water. The blue color seen upslope of the dark streaks are thought not to be related to their formation, but instead are from the presence of the mineral pyroxene. Credit: NASA/JPL/University of Arizona

(Phys.org)—It was a good week for physics as a team at Hokkaido University in Japan reported [the first observation made of quantum-tunneling diffusion of hydrogen atoms on ice](#)—as opposed to thermal hopping. Also, another team at the Georgia Institute of Technology announced [the first optical rectenna—a combined rectifier and antenna that converts light to DC current](#). The team used nanometer-scale components such as multiwall carbon nanotubes and extremely small rectifiers to create the device. Meanwhile, another team with members from the University of Californian and Rice University announced that they had come up with [a new flat transistor that defied a theoretical limit](#)—a field effect transistor that relies on quantum tunneling, making it possible to create ever smaller transistors without upping charge requirements.

The biggest news this week was of course [NASA confirming evidence that liquid water flows on today's Mars](#) and the story of [a drunk man kicking a humanoid robot raising legal questions](#). The man was arrested in Japan and charged with damaging property but public reaction suggested that new laws may have to be drawn up to include a new third type of existence for humanoid robots. Also making headlines was a report out of Sweden that researchers there had found [a link between tallness and a higher cancer risk](#)—especially for women.

In other news, a team of researchers with Caltech and JPL announced the discovery of [a new polymer for creating safer fuels](#)—an additive that can be used to reduce the intensity of explosions due to accidents. Another team of anthropologists at North Carolina State University reported on investigational work suggesting that [an ancestral background can be determined by fingerprints](#)—initial findings suggest some characteristics may be unique enough to spot the difference between people of European versus African descent. Also, a team at Stanford suggested that [plastic-eating worms may offer a solution to mounting waste](#)—the first detailed evidence of degradation of a plastic in an

animal's gut.

And finally, if you are one of the many who find it difficult at times to focus your attention on something, making it hard to remember it later, a team of researchers with Rutgers reported that they had found that [a drug used to treat cancer appears to sharpen memory](#). They claim it partially rewires the brain and helps keep neurons alive—so maybe there is hope for the foggy mid-afternoon brain lapse.

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